REMARKS

It is respectfully requested that this application be reconsidered in view of the following remarks and that all of the claims remaining be allowed.

Claim amendments

Claims 1-20 have been canceled with prejudice or disclaimer. Applicants expressly reserve the right to file one or more continuing applications directed to the canceled subject matter.

New claims 21-32 have been added. Support for the new claims can be found, for example, as listed in Appendix A.

No new matter has been introduced by these amendments. The Examiner is requested to enter these amendments.

Restriction requirement

In the Office Action, the Examiner required the following restriction under 35 U.S.C. 121:

I. Claims 1-7, 9-10, drawn to polynucleotides, vectors, host cells and methods of making a polypeptide, classified in class 435, subclass 69.1, for example.

II. Claim 8, drawn to a method of forming a duplex, classified in class 435, subclass 504, for example.

IV. Claims 13-14, drawn to methods of using the binding compound, classified in class 436, subclass 501, for example.

V. Claims 16-18, drawn to a polypeptide, classified in class 530, subclass 350, for example.

VI. Claims 19-20, drawn to a method of modulating physiology of a cell, involving agonist of a primate IL-B50, classified in class 435, subclass 375, for example.

VII. Claims 19-20, drawn to a method of modulating physiology of a cell, involving antagonist of a primate IL-B50, classified in class 435, subclass 375, for example.

In response, Applicants elect Group V without traverse. Although all the original claims have been canceled, new claims 21-25 and 31-32 correspond to Group V.

Statement under 37 C.F.R. §1.607(c):

New claims 21-32 correspond substantially to claims 1, 3-8 and 10-14 of U.S. Patent No. 6,555,520 to Sims et al. They are being submitted to meet the requirements of 35 U.S.C. §135(b).

The remaining information required by 37 C.F.R. §1.607(c) will be submitted in due course. In the event that this application is reached for action by the Examiner prior to the submission of the remaining Rule 607 requirements, the Examiner is hereby requested to telephone the undersigned at 650-622-2300 (extension 2340).

Early examination of this application on the merits is earnestly solicited.

Respectfully submitted,

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Appendix A
Exemplary Support for the New Claims

New claims	Exemplary support
21. An isolated polypeptide selected from the group consisting of: (a) a polypeptide encoded by a nucleic acid molecule having SEQ ID NO: 3; and	Sequence listing: SEQ ID NO:3 encodes SEQ ID NO:4; Page 12, lines 13-15: Purified IL-B50 Primate, e.g., human, IL-B50 amino acid sequence, is shown as one embodiment within SEQ ID NO: 2 or 4.
(b) a polypeptide encoded by a nucleic acid molecule which hybridizes to the complement of the polynucleotide having SEQ ID NO: 3 under conditions of about 100 mM salt and 60°C, wherein said polypeptide is capable of binding an IL-B50 receptor.	Page 33, line 31 to page 34, line 2: Another indication that two nucleic acid sequences are substantially identical is that the two molecules hybridize to each other under stringent conditions; Page 31, lines 3-12: Stringent conditions, in referring to homology in the hybridization context, will be stringent combined conditions of salt, temperature, organic solvents, and other parameters, typically those controlled in hybridization reactions. Stringent temperature conditions will usually include temperatures in excess of about 30° C, usually in excess of about 37° C, typically in excess of about 55° C, 60° C, 65° C, or preferably in excess of about 70° C. Stringent salt conditions will ordinarily be less than about 1000 or 600 mM usually less [illegible] mM.

New claims	Exemplary support
22. A purified IL-B50 polypeptide wherein the polypeptide comprises SEQ ID NO: 4, or a fragment thereof,	Page 12, lines 25-28: As used herein, the term "human soluble IL-B50" shall encompass, when used in a protein context, a protein having amino acid sequence corresponding to a soluble polypeptide shown in SEQ ID NO: 2 or 4, or significant fragments thereof.
capable of binding IL-B50 receptors.	Page 18, lines 12-14 (emphasis added): In vitro assays of the present invention will often use *isolated protein, soluble fragments comprising receptor binding segments of these proteins*, or fragments attached to solid phase substrates. Page 18, lines 18-20 (emphasis added): This invention also contemplates the use of competitive drug screening assays, e.g., where neutralizing antibodies to the cytokine, or *receptor binding fragments* compete with a test compound. Page 40, lines 21-22: Helices A and D are most important in receptor interaction, with the D helix the more important region.

New claims	Exemplary support
23. A purified IL-B50 polypeptide comprising an amino acid sequence that is at least about 80% identical to the amino acid sequence of SEQ ID NO: 2, or a fragment thereof,	Page 12, lines 25-28: As used herein, the term "human soluble IL-B50" shall encompass, when used in a protein context, a protein having amino acid sequence corresponding to a soluble polypeptide shown in SEQ ID NO: 2 or 4, or significant fragments thereof. Page 15, line 29 to page 16, line 2: Identity measures will be at least about 35%, generally at least about 40%, often at least about 50%, typically at least about 60%, usually at least about 70%, preferably at least about 80%, and more preferably at least about 90%.
wherein the polypeptide is capable of binding IL-B50 receptors.	Page 18, lines 12-14 (emphasis added): In vitro assays of the present invention will often use *isolated protein, soluble fragments comprising receptor binding segments of these proteins*, or fragments attached to solid phase substrates. Page 18, lines 18-20 (emphasis added): This invention also contemplates the use of competitive drug screening assays, e.g., where neutralizing antibodies to the cytokine, or *receptor binding fragments* compete with a test compound. Page 40, lines 21-22: Helices A and D are most important in receptor interaction, with the D helix the

New claims	Exemplary support
24. A purified human IL-B50 polypeptide comprising an amino acid sequence that is at least 80% identical to amino acids 1 through 131 of SEQ ID NO: 4, or a fragment thereof, wherein the polypeptide is capable of binding an IL-B50 receptor.	Page 27, line 30 to page 28, line 1 (emphasis added): Said biologically active protein or polypeptide can be an intact antigen, or fragment, and have an amino acid sequence disclosed in, e.g., SEQ ID NO: 2 or 4, particularly *a mature, secreted polypeptide*. Page 10, lines 24-26: The signal sequence probably is about 33 residues, and would run from the met to about thr. See SEQ ID. NO: 1 and 2; supplementary sequence provides SEQ ID NO: 3 and 4.
25. A composition comprising the polypeptide of claim 22, 23, or 24, and a physiologically acceptable diluent or carrier.	Page 37, line 29 to page 38, line 1: IL-B50, antagonists, antibodies, etc., can be purified and then administered to a patient, veterinary or human. These reagents can be combined for therapeutic use with additional active or inert ingredients, e.g., in conventional pharmaceutically acceptable carriers or diluents,...

New claims	Exemplary support
26. A method of stimulating lymphoid proliferation, comprising incubating lymphoid cells with the polypeptide of claim 22, 23, or 24.	Page 10, lines 13-16: It is likely that IL-B50 has either stimulatory or inhibitory effects on hematopoietic cells, including, e.g., lymphoid cells, such as T-cells, B-cells, natural killer (NK) cells, macrophages, dendritic cells, hematopoietic progenitors, etc. Page 37, lines 11-12: In particular, the cytokine should mediate, in various contexts, cytokine synthesis by the cells, proliferation, etc. Page 2, lines 10-11: Some of these factors are hematopoietic growth and/or differentiation factors, e.g., stem cell factor (SCF) and IL-7. Page 11, lines 1-3: The structural homology of IL-B50 to related cytokine proteins suggests related function of this molecule. IL-B50 is a short chain cytokine exhibiting sequence similarity to IL-7.
27. The method of claim 26, further comprising incubating the lymphoid cells with IL-7.	Page 9, lines 1-6: The invention embraces a method of modulating physiology or development of a cell or tissue culture cells comprising contacting the cell with an agonist or antagonist of a primate IL-B50. The method may be where: the contacting is in combination with an agonist or antagonist of an antibody binding site which specifically binds an IL-B50.

New claims	Exemplary support
28. A method of stimulating lymphopoietic development comprising incubating progenitor cells with the polypeptide of claim 22, 23, or 24.	Page 55, lines 2-9: The effect on proliferation or differentiation of various cell types are evaluated with various concentrations of cytokine. A dose response analysis is performed, in certain cases in combination with the related cytokine IL-7 and/or stem cell factor. In particular, IL-7 exhibits strong effects on lymphopoietic development and differentiation. The IL-B50 will be tested on cord blood cells to see if it has effects on proliferation or differentiation of early progenitor cells derived therefrom. Page 10, lines 13-16: It is likely that IL-B50 has either stimulatory or inhibitory effects on hematopoietic cells, including, e.g., lymphoid cells, such as T-cells, B-cells, natural killer (NK) cells, macrophages, dendritic cells, hematopoietic progenitors, etc.
29. The method of claim 28, wherein the progenitor cells are bone marrow-derived stem cells.	Page 55, lines 9-11: Preferably, the cells are early precursor cells, e.g., stem cells, originating from, e.g., cord blood, bone marrow, thymus, spleen, or CD34+ progenitor cells.
30. The method of claim 29, further comprising incubating the bone marrow-derived stem cells with IL-7.	Page 55, lines 2-5: The effect on proliferation or differentiation of various cell types are evaluated with various concentrations of cytokine. A dose response analysis is performed, in certain

New claims	Exemplary support
31. The polypeptide of claim 22 or 23, wherein the polypeptide is a fusion protein.	Page 19, lines 8-9: Fusion polypeptides between IL-B50s and other homologous or heterologous proteins are also provided.
32. The polypeptide of claim 31 wherein the fusion protein comprises an Fc domain.	Page 45, lines 28-31: For example, means to label the IL-B50 cytokine without interfering with the binding to its receptor can be determined. For example, an affinity label can be fused to either the amino- or carboxyl-terminus of the ligand. Such label may be a FLAG epitope tag, or, e.g., an Ig or Fc domain.